REMARKS/ARGUMENT

Applicant responds herein to the Office Action dated June 17, 2004.

The objection to the title has been noted and an alternate title that is believed to be more descriptive of the invention has been provided. However, the applicant would gladly accept any title that the Examiner may suggest.

The applicant has further noted the objection to the specification concerning the description of the subject matter of claim 4. The specification has been amended to moot this objection. It is noted that the claimed feature is shown in the drawings, specifically in Fig. 5 which shows the projection 266, which does not extend to the distal end. In contrast, the outer annular wall that defines the groove 296 extends farther out. Reconsideration and withdrawal of the objection is therefore earnestly requested.

Substantively, claims 1-2 and 26 stand rejected on grounds of anticipation by Schwarz (6,402,553). Claims 27-32 stand rejected on grounds of anticipation by Stoll (4,960,393). Claims 3-7, 12-17 and 22-23 are asserted to be obvious over Schwarz and Stoll. Claims 8-11 stand rejected on grounds of obviousness over Schwarz in view of Nierlich (5,660,567), and claims 18-21 stand rejected on grounds of obviousness over Schwarz, Stoll and Nierlich. Claims 24-25 stand rejected on grounds of Schwarz. Claims 33-34 stand rejected on grounds of Schwarz in view of Hood (5,324,297). Reconsideration is requested in view of the amendments to the claims herein and the following remarks.

Preliminarily, and without intending to limit the scope of the claims, the applicant deems it worthwhile to discuss Figs. 1, 4-6 and 7 of the instant specification to facilitate the Examiner's reading of the involved claims and the discussion of the invention which follows.

Fig. 1 illustrates that the present invention is directed to a medical instrument (201) with a male plug 231 at one end thereof. A socket connector 232 is provided at the end of a cable that connects to a power supply 234. Thus, we are discussing here a plug/socket set. The plug and the socket are easily and rapidly connectable and disconnectable in normal use. That feature enables a variety of different medical instruments to be connected to the power cable having the socket 232 at one end thereof.

The plug component which is at one distal end of the medical instrument is illustrated in Figs. 4, 5 and 6. It has a central projection 266. The central projection 266 is surrounded concentrically by a wall which surrounds the outer circumferential surface of the central projection, creating an annular groove 296 therebetween. Incidentally, the width of the groove is such that one cannot stick a finger into it, thus protecting the electrical contacts or electrodes 265 which are provided on the circumferential surface of the central projection 266.

Note in Fig. 4 that the electrodes 265 are on the outer circumferential surface of the central projection 266, which surface is not smooth but rather there are radial projections or depressions in the projection 265. On the radially outwardly projected parts of the central projection are provided the contacts 265. The brushes 298 shown in Fig. 6 can be utilized to clean the contacts and the internal space which comprises the groove 296.

Note that in claim 1 reference is made to the "moving direction" of the plug. The moving direction coincides with the axial direction of the projection shown in Figs. 4-6. In other words, the electrical contacts 265 (Figs. 4 and 5) extend in the moving direction of the plug.

Fig. 7 illustrates the socket component of the plug and socket set. The electrical contacts in the socket are identified by reference numeral 305. These contacts 305 are the ones that mate with the contacts 265 in the plug when the plug and the socket are interconnected. Surrounding these centrally located contacts is an annular wall 304 which fits in the groove 296 of the plug (Fig. 5). The many advantages of the plug/socket set of the present invention are described at length in the instant specification.

The foregoing non-limiting description should serve, however, to substantially facilitate reading the claims. Consider for example claim 1. It refers to a "projection protruding in a moving direction in which the medical instrument is connected to the socket electrically connected to the power supply". In the drawings of the present invention this projection refers to the projection 266 shown in Figs. 4 and 5.

Claim 1 goes on to recite "a second electrode electrically connected to the first electrode, wherein an exposed contact portion has an elongated portion as to extend along the moving direction is formed, the exposed contact portion being located around the projection". This

clearly refers to the contacts 265 shown in Figs. 4 and 5 by way of a particular embodiment of the present invention.

Claim 1 goes on to recite "a connector shell protruding in the moving direction, the connector shell being provided outside the projection and leaving a predetermined distance relative to the projection as to form a groove therebetween". Clearly what is being referred to is the shell that surrounds the central projection 266 and defines the aforementioned groove.

Understanding of the remaining claims in the instant specification is similarly enhanced by the foregoing description.

Turning to the references, each of the claims stand rejected on the basis of the teachings from either Schwarz or Stoll, utilized as the primary reference (or combinations thereof with other references). The Examiner's kind attention is directed to Figs. 3 and 4 of the Schwarz reference. These figures depict a plug and socket set. Regardless of whether the Examiner chooses to view the construction of Fig. 4 as the "socket" or the "plug", these drawings do not teach the present invention. The electrical contact in the plug of Fig. 4 is located "dead center" in the structure and has resilient fingers 13. When the plug is pushed into the socket of Fig. 3 the electrical contact 13 contact with and fit on the central electrode 27. Nothing herein discloses a "projection" on the outer circumferential periphery of which there extends an electrical contact. There is no surrounding groove in the manner of claim 1 or the description of the present specification. The electrical pins 27 in Fig. 3 do not correspond to the electrical contacts 265 in Fig. 5 and in the instant claims.

Stoll is even further removed from the description and certainly from the claimed subject matter of the present application. Stoll et al. do not describe a plug and socket set. The structure of Fig. 1 is an exploded view of what is simply a "plug". There is no separable socket. Referring to Fig. 1, electrically conductive pins 47 mate (internally and irremovably once the plug is fully assembled) with electrical conductive elements 34, each of which has one leg 35 which contacts the exteriorly exposed pins 47, and a socketlike portion 36 which faces to one side of the plug. The back end forms the socket end of the plug.

Respectfully, it is inappropriate to refer to the electrical contacts 34 as a connector. They do not connect or provide a connection in an annular space which corresponds to the groove of

the present invention. At one end, the electrical members 34 are fixedly connected to the exteriorly protruding pins 47. It appears that one plug of the type shown in Fig. 1, when fully assembled, can plug to the rear of another similar plug. In this case the pins 47 would plug into the interior space of the connecting element 34 and would not be situated in any groove surrounding the electrical members 34.

Applicant is unable to correlate the plug and socket set of the present invention with what is disclosed in the Stoll '393 reference.

The foregoing remarks clearly illustrate the non-compatibility of the connectors shown in the two primary references with what is claimed in the claims of the present invention.

In addition, Schwarz discloses an electric plug for medical purposes. Stoll discloses the structure for a connector for solenoid valves. The 5,324,297 patent discloses a structure which is associated with an ultrasonic handpiece.

In the first instance, the disclosure of the Stoll reference belongs to a technical field which is unrelated to medical instruments. Indeed its structure is completely different from the present invention which concerns medical instruments. The '297 patent merely discloses an ultrasonic handpiece and does not disclose anything related to the detailed structure of a connector as defined in the instant claims.

In contrast, claim 1 is characterized in that it applies a particular connector structure for unique utilization with medical instruments, and not at the point where a connection is made to a power supply.

Nor indeed can one arrive at the present invention by considering the combination of all of the references of record. No reference and no combination thereof leads one to construct a connector which comprises the electrical contacts on the plug portion of the connector in a manner where those conductors are exposed to a surrounding and protective groove, and the corresponding electrical contacts in the socket portion are inserted into the groove in a manner where they slide along and contact the electrical conductors of the plug.

Independent claim 12 is characterized in the combination of the characteristic features of the plug for medical instruments and the characteristic features of the socket of the power supply side which is connected to the plug. None of the references discloses or suggests the claimed

combination and the applicant considers that the combination cannot be easily conceived based on all the references.

Each of the references does not disclose or suggest applying the characteristic feature defined in claim 27 to the plug for an ultrasonic handpiece and the invention cannot be easily conceived based on all of the references.

None of the cited prior art references discloses or suggests the characteristic feature of claims 33 and 35 (which incorporate a combination of the characteristic features of the plug for an ultrasonic handpiece and the characteristic feature of the socket on the power supply side which is connected to the plug, or the socket of the handpiece). The above characteristic features cannot be easily conceived based on the disclosure of all of the references taken together.

Nor is there any suggestion in any of the prior art that their disparate teachings, which are directed to different instrumentalities, could or should be separated from their own context and modified and combined in order to match and obtain the construction of the present invention.

Accordingly it is submitted that all of the claims in the application are directed to subject matter which is clearly distinguishable over the prior art of record.

Accordingly, the Examiner is respectfully requested to reconsider the application, allow the claims as amended and pass this case to issue.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents and Trademarks, P.O. Box 1450, Alexandria, VA 22313-1450, on September 15, 2004

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September 15, 2004
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